& E. C. Haderlie (eds.), Intertidal invertebrates of California. Stanford Univ. Press: Stanford, Calif.

Boyd, C. M. 1967. The benthic and pelagic habitats of the red crab, *Pleuroncodes planipes*. Pacific Sci. 21:394–403.

Cane, M. A. 1983. Oceanographic events during El Niño. Science 222:1189–1195.

Cox, K. W. 1962. California abalones, family Haliotidae. Calif. Dept. Fish and Game, Fish Bull. 118:1–113.

Fiedler, P. C. 1984. Observations of the 1982–83 El Niño along the U.S. Pacific coast. Science 224:1251–1254.

Glynn, P. W. 1961. The first recorded mass stranding of pelagic red crabs, *Pleuroncodes planipes*, at Monterey Bay, California, since 1859, with notes on their biology. Calif. Fish and Game 47:97–101.

Leighton, D. & R. A. Boolootian. 1963. Diet and growth in the black abalone, *Haliotis cracherodii*. Ecology 44:227–238.

Longhurst, A. R. 1966. The pelagic phase of *Pleuroncodes planipes* Stimpson (Crustacea, Galatheidae) in the California Current. California Cooperative Oceanic Fisheries Investigation Reports 11, 1 July 1963 to 30 July 1966:142–154.

McLean, J. H. 1978. Marine shells of southern California. Natur. Hist. Mus. Los Angeles Co., Sci. Ser. 24 (Revised edition):1–104.

Stewart, B. S., P. K. Yochem & R. W. Schreiber. 1984. Pelagic red crabs as food for gulls: a possible benefit of El Niño. Condor 86:341–342.

Soviet Contributions to Malacology in 1980

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INTRODUCTION

As in past years, herein is provided a listing of malacological papers by Soviet scientists included in, and frequently abstracted by, the 1980 issues of the Referativnyy Zhurnal (see Veliger 27[3]:339–346 for the last such listing and references to previous ones).

We follow the categorical arrangements as utilized by the Referativnyy Zhurnal itself, although occasionally we may place selected titles in more approriate categories.

Certain publications this year are major contributions to the field, the most important of these being Golikov's monograph of the Buccininae of the world in which he treats 93 species and subspecies (several as new) in great detail; this extensive work is illustrated by plates showing the shells as well as enlargements for sculptural detail; also presented are figures of egg capsules, radulae, operacula, and anatomy as well as maps and charts indicating geographical, bathymetric, and ecological ranges and parameters. The bibliography includes nearly 1100 citations.

Although a number of new species were introduced, several papers also established new family-level taxa or revisionary arrangements of previously studied groups. Thus, Starobogatov and Izzatullaev divided the freshwater prosobranch family Thiaridae into three independent familial units: Thiaridae *s.s.*, Melanatriidae, and Melanoididae, new family, on the configuration of the pallial gonoducts; further, they subdivided the widely distributed, often parthenogenetic *Melanoides tuberculatus* into four species, two of which are new. Among "hydrobioid" taxa Izzatullaev discussed the little known pomatiopsid taxa of Tadzhikistan, describing two new species, one in *Kainarella* and another in *Pseudocaspia*.

Special attention to mollusks of the Kuril Islands is reflected in Gul'bin's paper on prosobranchs and Sirenko's on chitons, the latter work considering the chiton fauna off a single island, Simushir; the densities of these animals are high (*e.g.*, 3100/m^2 for *Juvenichiton albocinnamoneus*). Further, an entire book by Volova, Golikov & Kusakin was devoted to the shelled gastropods of the geographically adjacent Peter the Great Bay; 119 species in 43 families were noted and figures, descriptions, ranges, and ecological notes provided.

Among cephalopods, considerable attention was given to the exploitation of the neritic niche with papers by Nigmatullin on the economically important ommastrephids and by Nesis on sepiids and loliginids. Further, in a short review of the whiplash squids of the family Chiroteuthidae by Nesis, the new genus *Asperoteuthis* was established.

Popov & Skarlato reviewed the bivalve family Carditidae in the North Pacific, describing a new species of *Cyclocardia*, while Kafanov reconsidered the living cardiids in the Black Sea, making several nomenclatorial alterations. Of particular interest to those working on cardiids is a paper by Zaiko, Zaiko & Krasnov who assert that temperature effects the number of ribs on the shell, rendering narrowly circumscribed rib-counts rather suspect for taxonomic purposes. Izzatullaev examined the five species in the freshwater bivalve family Corbiculidae in Central Asia.

Kuznetzov, Kozaka & Isibasi investigated the relationship of gill-size to palp-size in several bivalves, concluding that the deposit feeding Tellinacea have proportionately much larger palps than suspension feeding bivalves like mytilids or venerids, an adaptation documented earlier by other authors.

For a continental Palearctic freshwater fauna, that of Siberia seems extremely rich: Dolgin & Johansen discussed in some detail 31 species and recorded 65 species of freshwater mollusks from northwestern Siberia, and even in the more isolated Kureyka River, a tributary of the Yenisey above the Arctic Circle, 41 species of fresh-

water mollusks were listed by Gundrizer! For more southerly climes, Zatravkin enumerated 55 species of freshwater mollusks, 39 gastropods, and 16 bivalves, from the Il'mensk Preserve in the southern Urals.

ABBREVIATIONS

BMV—Biologiya Morya (Marine Biology, Vladivostok).
BPGF—Biochim. i populyatzion. genet. rib. (Biochemical and population genetics of fish).
ES—English summary.
GZ—Gidrobiologicheskii Zhurnal (Hydrobiological Journal).
NDVS—Nauch. Dokl. Vyssh. Shkol. Biol. Nauk. (Scientific Reports of the Higher Educational School for Biological Sciences).
NPS—Nov. probl. zool. naukhi i ilk otrazhenie vyzovsk. prepodavanii. Tez. Dokl. Nauch. Konf. Zoologov. Ped. in-tov. ch. 1 Stavropol (New problems in zoological science and their effect on university teaching. Thesis Reports on the teaching of science conference. Zoology. Pedagogical Institute, Stavropol).
PEMZ—Vopr. Evoluts. Morfol. Zhivotnykh. Kazan (Problems of the Evolutionary Morphology of Animals. Kazan).
PMIN—Paleobiogeokhimya mor. bespozvonochnykh (Paleobiogeochemistry of Marine Invertebrates, Novosibirsk).
TIO—Trudy Instituta Okeanologii. Akademiya Nauk SSSR (Transactions of the Institute of Oceanology, Academy of Sciences, USSR).
ZEBF—Zhurnal Evolyutsionnoi biokhimii i fiziologii (Journal of Evolutionary Biochemistry and Physiology).
ZZ—Zoologicheskii Zhurnal (Zoological Journal).
14th PSC—14 Tikhookean. nauch. Kongr. (14th Pacific Science Congress).

GENERAL

Alyakrinskaya, I. O. 1979. On the survival of mollusks under conditions of dehydration. Dikhatel'n Belki Nekotor. Grupp. Sovrem. Zhivotnikh (Respiratory proteins of several groups of Recent animals). Moscow, pp. 151–155.
[Duration of survival of five aquatic species of snails and ten of clams in an air environment was studied. Though many species survived for several days to over a week, *Planorbis corneus* survived for two months, even in temperatures above 15°C.]

Alyakrinskaya, I. O. 1979. Dissolution of shell hypostracum in several mollusks. Dikhatel'n Belki Nekotor. Grupp. Sovrem. Zhivotnikh (Respiratory proteins of several groups of Recent animals). Moscow, pp. 155–159.
[A significant increase in the concentration of calcium in the hemolymph is displayed in the Black Sea bivalve mollusk *Venus gallinae* under conditions of dehydration and in the terrestrial Caucasian mollusk *Caucasotachea atrolabiata* during the summer, the source of which appears to be the internal layers of the shell. Appended is a list of mollusks that utilize dissolution of shell hypostracum during interruptions of normal conditions of respiration.]

Artyushenko, O. T. & I. V. Mel'nichyk. 1979. Paleobotanical and malacofaunistic characteristics of the Quaternary deposits of the basal canyon near Mt. Snyatin (Pre-Carpathians). Ukrainian Botanical Journal 36(6):528–532, 622. (In Ukrainian, with Russian and English Summaries).
[Palynological and molluscan data showed appreciable differences between forest and plain horizons in neanthropogenic deposits in the Pre-Carpathians.]

Berezkina, G. N. 1979. Some data on the biology of *Limnaea atra* in the Smolensk Region. NPS, pp. 49–51.

Berger, V. Ya. 1979. Euryhaline marine mollusks: morphological and functional aspects. 14th PSC, Sect. F, pp. 5–6.

Dolgin, V. I. & B. G. Johansen. 1979. Ecological and morphological characteristics of new and little known freshwater mollusks of northwestern Siberia. Nov. Dannie o Faune i Flore Sibiri (New Contributions on the Fauna and Flora of Siberia). Tomsk, pp. 47–61.
[The distribution, abundance, and morphological characteristics of 31 mollusks are discussed as is the role of these animals in the diets of fish and birds.]

Dolgin, V. I. & B. G. Johansen. 1980. Ecological and geographical characteristics of the mollusks of northwestern Siberia. Nov. Dannye v Prirode Sibiri (New Contributions to the Natural History of Siberia). Tomsk, pp. 30–42.
[Ecological and zoogeographic data on 65 species of freshwater mollusks are presented.]

Frolenkova, O. A. & N. D. Kruglov. 1979. On the morphology of the egg capsules in the molluscan families Acroloxidae, Bulinidae, and Planorbidae. NPS, pp. 181–183.

Gridney, E. A. & E. A. Kazannikov. 1979. On the maintenance of pond snails (lymnaeids) under laboratory conditions. NPS, p. 62.

Gul'bin, V. V. 1979. Sixth All-Union Meeting on the study of mollusks. Mollusks, principle results of their study. BMV, No. 6, p. 86.
[96 papers were presented which dealt with various aspects of the ecology, physiology, and biology of marine bivalves, gastropods, and cephalopods as well as freshwater and terrestrial mollusks and their parasites.]

Gundrizer, V. A. 1979. Freshwater mollusks of the Kureyka River (Basin of the Lower Yenisey). Nov. Dannie o Faune i Flore Sibiri (New Contributions on the Fauna and Flora of Siberia). Tomsk, pp. 62–68.
[The malacofauna of the Kureyka, a right bank tributary of the lower Yenisey, consists of 41 species, 8 recorded for the first time. Information is presented on their ecology, abundance, and role in the diets of fish.]

Kafanov, A. I. 1979. On conservatism and variability in growth temperatures in the shells of marine mollusks. BMV, No. 6, pp. 59–69 (ES).
[Miocene specimens of *Ciliatocardium ciliatum* were shown, using an oxygen isotope method, to have higher average temperatures of growth than contemporary samples, indicating the trend of global cooling over Cenozoic time.]

Kafanov, A. I. 1979. On the ecological evolution of the malacofauna of the cool temperate shelf of the Northern Hemisphere and the paleoclimatological significance of marine bivalves. Transactions of the Institute of Biology and Soil Science of the Far Eastern Scientific Center, Academy of Sciences of the USSR, 52/155, pp. 58–72.
[An hypothesis is proposed to explain the evolution of this fauna since the Neogene, or late Miocene. Ecological parameters such as temperature are reconstructed on the basis of oxygen isotope analyses.]

Kazannikov, E. A. 1979. Freshwater mollusks of the Stavropol region. NPS, p. 81.

Khokhutkin, I. M. 1979. Sixth All-Union Meeting for the study of mollusks. 7–9 Feb. 1979. Ekologiya (Ecology), No. 6, p. 104.

[Organized by the Zoological Institute, the conference heard 149 papers dealing with the ecology of mollusks, under the following subheadings: population ecology, species formation, intrapopulational variation in phenotype frequencies, population genetics methodology, evolutionary morphogenesis, co-evolution, radioisotope tracers, growth, development, and other topics.]

Kozlova, L. E. & N. T. Mandrikova. 1980. Characteristics of composition of phragmacones of belemnites and shells of bivalve mollusks from Toarcian deposits in Yakut. PMIN, pp. 81–84.

[Data on the mineralogical and chemical compositions of belemnite phragmacones and bivalve shells collected together in the basin of the Vilyuy River were analyzed by infra-red spectroscopy, x-ray diffraction, and determination of specific heat; the mineralogical composition of carbonates was shown to be different.]

Krivosheina, L. V. 1979. On the zoogeographic characteristics of the freshwater malacofauna of the Upper Irtish River basin. Priroda i Kh-vo Vost. Kazakhstana (Nature and Fisheries of Eastern Kazakhstan), pp. 100–107.

[93 species and subspecies are known from the basin of Upper Irtish, of these 15 have Palearctic distributions, 23 European–Siberian and 8 Siberian; one species is endemic.]

Kruglov, N. D. 1979. Reproductive biology and observations on protandry among lymaeids. NPS, pp. 91–92.

Lur'e, A. A. & S. A. Beyer. 1980. A method for marking mollusks. MS Application, E. I. Marchinovski Inst. of Parasitology and Tropical Medicine.

[Radioactive cobalt and silver were applied, under a layer of water repellent lacquer, to the shells of *Bithynia inflata, Biomphalaria alexandrina,* and *Physa acuta,* which were then found to be detectable in the field by scintillation radiometry.]

Lur'e, A. A. & S. A. Beyer. 1980. On a new method of marking freshwater mollusks. ZZ 59(4):609–619 (ES).

[Long-lived isotopes implanted in the shell and covered by a film of nail polish proved to be effective in following populations of *Bithynia inflata* for two years.]

Moskvicheva, I. M. 1979. Studies on the malacofauna of the Upper Zeya (River) Basin. [Amur Province, Western Siberia.] NPS, p. 122.

Natochin, Yu. V., V. Ya. Berger, E. A. Lavrova, O. Yu. Mikhailova & V. V. Khlebovich. 1979. The roles of sodium and potassium in the regulation of cell volume in littoral mollusks. 14th PSC, Sect. F, pp. 32–33.

[Marine mollusks are capable of partial regulation of cell volume during changes in the salinity of the environment by regulation of intracellular levels of free amino acids and concentrations of electrolytes (Na, K, Cl).]

Nikolaev, V. A. 1979. Clausiliid land snails from the central Russian hills. NPS, pp. 126–127.

Polyakov, D. M. 1980. On the choice of a carrier for quantitative spectral analysis of micro-elements in the shells of marine mollusks. PMIN, pp. 139–143.

[The carrier of choice for quantitative analyses of Fe, Mg, Mn, Sr, and Ba by emission spectroscopy was shown to be 10% PbCl.]

Reznik, Z. V. & N. Tikhova. 1979. Terrestrial mollusks of highland pastures in the Urup regions [Western Caucasus] of the Stavropol Territory. NPS, pp. 144–145.

Shakhmaev, N. K. 1979. Study of the mechanisms of the accumulation of manganese in freshwater mollusks. Khim. i Biokhim. Okislenne Sistem, Soderzhashch, d-elementy. (Chemical and biochemical oxidative systems, maintaining d-elements). Chelyabinsk, pp. 38–39.

[Mn accumulates by a variety of mechanisms in different organs, *e.g.,* in gills, 28.8% by metabolism, 17.8% by adsorption, and 4.6% by diffusion; respective values are given for mantle, digestive and gonadal tissue.]

Zatravkin, M. N. 1980. Aquatic malacofauna of the Il'mensk Preserve (Southern Urals). ZZ 59(3):452–455 (ES).

[The 162 samples taken in June–August 1975 were found to contain 55 species (39 gastropods and 16 bivalves). In comparison, Tausson collected 62 species from 1937–1940. Their geographic affinities were: 1 Irtish endemic, 17 European, 1 Siberian, 2 southwestern European, 1 northwestern European, and 40 Euro-Siberian and Palearctic.]

Zatravkin, M. N., E. D. Pavlova & V. F. Rodionov. 1970. Gastropods of the Upper Volga. NPS, p. 74.

POLYPLACOPHORA

Sirenko, B. I. 1979. Chitons (Polyplacophora) of the coastal waters of Simushir Island. Biology of the shelf of the Kuril Islands. Moscow, pp. 200–208.

[16 species in 11 genera were found to occur in the near-shore waters off Simushir (to 70 m). Highest densities were 3100/m^2 by *Juvenichiton albocinnamoneus* and 800/m^2 by *Spongioradsia subaleutica. Lepidozona thielei* accounts for the greatest biomass (160 g/m^2). The biogeographic composition of the fauna consists of high boreal species 65%, widely distributed boreal species 29%, and boreal-arctic species 6%.]

GASTROPODA, GENERAL

Andronnikov, V. B. 1980. Threshold temperatures of cellular thermonarcosis of littoral mollusks of coral islands and the temperature conditions of their environment. TIO 90:51–57 (ES).

[Using pedal musculature of snails from supralittoral, littoral, and upper sublittoral zones from the Pacific Ocean, the author established the threshold temperature of thermonarcosis for different species.]

Gul'bin, V. V. 1979. Distribution of prosobranch gastropod mollusks on the Shelf of the Kuril Islands. Biology of the Shelf of the Kuril Islands, Moscow, pp. 209–221.

[A study of the vertical distribution and relationship to substrate of prosobranch gastropod mollusks of the Shelf of the Kuril Islands showed: more warm-water species dwell in the upper zones of the sea, and their number declines with depth while the opposite is true of cold-water species. A vertical zonation of the shelf results that differs in different parts of the island chain. The most important factor influencing the distribution of mollusks appears to be the temperature of the water. The greatest number of species inhabit rocky substrates, the least gravel substrates; only 20% of gastropod mollusk species are restricted to one type of bottom, while the remainder can inhabit a variety of substrates.]

Kornyushin, A. V. 1980. On the land mollusk fauna of the Black Sea Preserve. Vestnik Zoologii (Zoological Herald), No. 2, pp. 75–78.

[25 species (2 prosobranchs) constitute the fauna, most of which are widely distributed Holarctic species; data on habitat, distribution, and predation by birds are included.]

Sirenko, B. I. 1980. Gastropods of Scotta Reef. Biol. Korallov. Rifob. Morfol., Sistemat., Ekol. (Biology of Coral Reefs; Morphology, Systematics and Ecology). Moscow, pp. 87–112.

[192 species of gastropods are listed with notes on their ecological zonation.]

Volova, G. N., A. N. Golikov & O. G. Kusakin. 1979. Shelled gastropod mollusks of Peter the Great Bay. Vladivostok, Dal'nevost. Kn. Isd.-vo. (Far Eastern Book Press), 170 pp.

GASTROPODA, PROSOBRANCHIA

Barskov, I. S., M. A. Golovinova & V. N. Goryachev. 1980. On the structure of the nacreous layers of deepwater *Seguenzia* (Mollusca: Gastropoda). Dokl. AN. SSSR (Reports of the Acad. Sci. USSR), 252(4):1015–1017 (ES).

[The structure of the nacreous layer of this genus differ sharply from the columnar nacre of other gastropods, being reminiscent of some bivalves and imparting greater strength to the shell.]

Golikov, A. N. 1980. Fauna of the USSR. Mollusca. Vol. 5, part 2. The molluscan sub-family Buccininae in the World Ocean. Leningrad, Nauka (Science [Press]), 508 pp., 42 pls.

[This monograph is a comprehensive study of the world fauna of Buccininae, including 3 genera, 3 subgenera, 93 species and subspecies, and numerous ecological forms and varieties. A full synonymy, description, figures, and an analysis of ecology and distribution are given for each species. A special section includes tables with species and subspecies diagnoses. Features of adaptive and evolutionary morphogenesis are discussed in the main section. Utilizing data from historical geology and paleontology, the author presents a spatial-temporal scheme of the evolution of the Buccininae, which shows how it coincides with the evolution of ecosystems in the Northern Hemisphere during the Cenozoic. All vertical zones of epicontinental bodies of water of temperate and cold latitudes of the Northern Hemisphere are divided into biogeographic regions based on these data. In the ecology section, quantitative methods were used to examine the relationships between species and different types of substrates, vertical distribution, temperature, including optimal and survivable temperatures, and salinity. Special emphasis was placed on temperatures of growth, life-span, and productivity of the common species. During studies of reproductive ecology, the egg capsules of many species were identified, and conditions optimal to reproduction and artificial propagation clarified.]

Izzatullaev, Z. 1979. On new species of gastropod mollusks of the family Pomatiopsidae (Mollusca: Discopoda) from Tadzhikistan. Reports Acad. Sci. Tadz, SSR 22(10):629–631 (Tadzhik Summary).

[Previously, mollusks from underground springs of central Asia (genera *Kainarella* and *Pseudocaspia*) were included in the family Littorinidae Gray, 1857. Detailed studies of the holotypes allowed the author to clarify the systematic affinities of these species and to include them in the Pomatiopsidae Stimpson, 1865, a group whose representatives are widely distributed in the continental waterways of eastern Asia. Described are *Kainarella likharevi* and *Pseudocaspia rozae*. The former is similar in shell form to *K. minima* from the southeastern region of Turkmenistan, but is distinguished on the basis of its irregular cylindrical shell shape, its round-oval aperture appressed to the wall of the penultimate whorl, the absence of surface sculpture, and by its larger size (holotype: shell 1.5 mm high, 0.65 mm wide; aperture 0.55 mm high, 0.5 mm wide). Number of whorls is 4. *Pseudocaspia rozae* has an egg-shaped to conical, strong, light-brown shell. Dimensions of the holotype: shell 3 mm high, 1.2 mm wide; aperture 1.2 mm high, 1.1 mm wide. Number of whorls 5.]

Kantor, Yu. I. 1980. Species composition and variability of the gastropod molluscan genus *Buccinum* in the White Sea. ZZ 59(4):518–528 (ES).

[Seven species are recorded, two (*B. maltzani,* and *B. finmarchianum*) for the first time. Shell shape and sculpture as well as penial configuration were utilized as distinguishing traits.]

Poberezhnii, E. S. & V. I. Maksimov. 1979. On unusual forms of the operculum of the mollusk *Benedictia limnaeoides* from Lake Baikal. Hydrobiological and Icthyological Investigations of Eastern Siberia, Irkutsk, pp. 186–188.

[A triangular rather than an ovate operculum was found in a single female snail of a sample of 330 taken from 5 to 10 m; the authors claim this rare variant is connected to the polyploidy known to occur in *Benedictia*.]

Semenov, O. Yu. 1979. Experimental studies of the biology of the mollusk *Melanopsis praemorsa* L. Vestn. LGU (Herald of Leningrad State University), No. 15, pp. 9–17 (ES).

[Briefly investigated were the distribution and dispersal of this species, which is not affected by conditions of light, but does prefer warmer areas.]

Starobogatov, Ya. I. & Z. I. Izzatullaev. 1980. Mollusks of the family Melanoididae (Gastropoda: Pectinibranchia) of central Asia and adjacent territories. ZZ 59(1):23–31 (ES).

[On the basis of the structure of the pallial portion of the female reproductive system, the authors propose to divide the family Thiaridae, as usually accepted, into three independent families: Melanatriidae Thiele, 1929, with a completely open pallial gonoduct, albumen gland in the renal portion, and presence of a bursa; Thiaridae Preston, 1915, with a massive pallial gonoduct reaching to the mid-length of the mantle cavity; and Melanoididae Starobogatov, fam. nov., with the pallial gonoduct represented by two parallel, non-glandular tubes reaching the mid-length of the mantle cavity. Analysis of *Melanoides tuberculatus* from many stations in central Asia and Afghanistan suggests that it can be divided into five species on the basis of shell proportions and sculpture. Doubt is thus cast on the single species concept of *M. tuberculatus* throughout its extensive range of western Africa to Polynesia. There are three species in the territory of the USSR: *Melanoides pamiricus, M. kainarensis,* and *M. shahdaraensis*; the last two are described in this paper.]

Zhirmunskii, A. V., V. L. Kas'yanov & V. I. Lukin. 1980. The Mollusk *Haliotis* or sea ear. Priroda (Nature), No. 8, pp. 44–46.

[Moneron Island, off the SW coast of Sakhalin in the Sea of Japan is the only place in the USSR where *Haliotis discus* is found; it also occurs in northern Honshu, Hokkaido, and the islands of Rebun and Rishiri off NW Hokkaido. In 1972 and 1976–77 biologists from the Far Eastern Center studied this population which was noted on cliffs in the *Laminaria* zone at depths of 0.5–2 m. Although population density was high in places, the species was, in general, sparse, and it is unclear whether the population is self-replenishing or whether an influx of larvae on a branch of the Chusumski Current from Rebun and Rishiri islands sustains it. *Haliotis* is fished commercially in many areas of the world, both for its tasty meat and for its beautiful shell. In Japan, the harvest is 5–7 thousand tons per year. It is proposed that the Moneron population be included in "The Red Book of the USSR."]

GASTROPODA, PULMONATA, AQUATIC

Kruglov, N. D. 1980. Reproductive biology of freshwater pulmonate mollusks. ZZ 59(7):986–995 (ES).

[The reproductive biology of 27 species of freshwater pulmonates belonging to the families Lymnaeidae, Physidae, Bulinidae, and Planorbidae was found to pass through two stages of gonadal development: male gonadal maturity and hermaphroditic gonadal maturity. The first copulation is always as a male. Products of sperm readsorption in the spermatheca are humorally transmitted and influence endocrine control over subsequent development of the female portion of the reproductive system.]

Sharko, N. V. 1980. Adaptations to darkness in the eyes of the pond snail *Lymnaea stagnalis*. ZEBF 16(2):193–196.

[Electrophysiological studies on the adaptation to darkness were conducted on isolated preparations of eyes of adult pond snails. Under stimulation by light flashes, an increase in the amplitude of the electroretinogram was observed with time. Initially the amplitude grows rapidly, later it stabilizes. The dynamics of the response to light stimulation of constant intensity depends on temperature, the optimum being 17–20°C.]

Smirenina, L. K. 1979. On the problem of copulation among aquatic gastropods. Biol. Vnutr. Vod. (Biol. Internal Waters), Leningrad, No. 43, pp. 27–29.

[In pairing experiments with *Planorbarius corneus* and *Lymnaea stagnalis,* the latter more easily found each other in aquaria, indicating better long-distance chemoreception in *Lymnaea*.]

Starobogatov, Ya. I. & N. D. Kruglov. 1979. On two species of pond snail, genus *Limnaea,* new to the fauna of the Soviet Union. NPS, pp. 162–163.

GASTROPODA, PULMONATA, TERRESTRIAL

Al'mukhambetova, S. K. & K. K. Uvalieva. 1979. Mollusks of the family Vertiginidae (Mollusca: Gastropoda) of south and southeastern Kazakhstan. Izv. AN KazSSR (Proceedings of the Kazakhstan Academy of Sciences). Biol. Ser., No. 4, pp. 35–40 (Kazakh Summary).

[An ecological-faunistic survey of the mountain ranges of south and southeastern Kazakhstan revealed nine species (two described as new) of the family Vertiginidae.]

Al'mukhambetova, S. K. & K. K. Uvalieva. 1980. Mollusks of the family Pupillidae (Mollusca: Gastropoda) from south and southeastern Kazakhstan. Izv. AN KazSSR (Proceedings of the Kazakhstan Academy of Sciences). Biol. Ser., No. 2, pp. 27–32.

[The ecology, biology, distribution, and variability were studied in pupillid species which are separated by features of the reproductive system.]

Davtov, S. Sh. 1979. Inducers of feeding behavior in *Helix vulgaris* (Stylommatophora: Helicidae). ZZ 58(10):1464–1469 (ES).

[Starch and glycogen always elicit a feeding reaction; less frequently (10–40%) materials of animal origin cause it, suggesting potential carnivory.]

Dmitrieva, E. F. & Ya. S. Shapiro. 1979. Studies of nonspecific reactions of the reticulated slug to methaldehyde. Nauch. Tr. Leningr. S.-Kh. In-ta. (Scientific Transactions of the Leningrad S. Kh. Institute), No. 374, pp. 59–62.

[The sensitivity of various organs of juvenile slugs to the toxin methaldehyde was investigated histochemically.]

Izzatullaev, Z. 1980. On the life cycle of the slug *Lytopelte maculata* (Boch. and Heynemann, 1874) (Mollusca: Gastropoda) in Tadzhikistan. Izv. Acad. Nauk. Tadzh. SSR, Otd. Biol. (Proceedings Acad. Sci. Tadzhikistan SSR, Biological Sciences Section), No. 1, pp. 95–97.

[The structure, coloration, dimensions, and genitalia of *Lytopelte maculata* are described as are the details of reproduction, ecology, and distribution.]

Izzatullaev, Z. & A. A. Shileyko. 1980. A new species in the terrestrial molluscan genus *Bradybaena* from central Asia and observations on the genus *Ponsadenia*. Dokl. AN Tadzh. SSR (Reports of the Tadzhikistan Academy of Sciences) 23(4): 220–224 (Tadzhik Summary).

[*Bradybaena squamulosa* (type-locality: Cholpon-Ata, near Lake Issyk-Kul in Kirgiz) is described as new based upon features of the reproductive system and upon small, round-triangular periostracal scales that are similar to those on *Ponsadenia hirsuta* from the Terskey Mountains. Diagnoses are given for the subgenera *Tarbagataja* and *Ponsadenia*.]

Rimzhanov, T. S. 1979. New contributions to the molluscan fauna of the family Bradybaenidae (Mollusca: Gastropoda) of the Zailiysky Mountains. Izv. AN KazSSR (Proceedings of the Kazakhstan Academy of Sciences). Biol. Ser., No. 6, pp. 51–57 (Kazakh Summary).

[One species and one subspecies are described as new based on the morphology of the shell and the structure of the genital system.]

Samigin, F. I. & L. D. Karpenko. 1980. Motor organization of defensive reflexes in mollusks. NDVS, No. 3, pp. 38–42.

[Bodies of two motor neurons, responsible for contracting the respective right and left columellar muscles, were found in the right and left pedal ganglia of the grape snail.]

Shapiro, Ya. S. 1979. Terrestrial mollusks of the agrobiocenoses of Leningrad Province (Rept. 1). Nauch. Tr. Leningr. S-Kh. In-ta. (Scientific Transactions of the Leningrad Institute), No. 374, pp. 62–65.

[16 species of land mollusks representing 7 families were collected on agricultural lands of Leningrad Province.]

Shikov, E. V. 1979. Effects of industrial activities of man on the distribution of terrestrial mollusks. The protection of nature in the Upper Volga, Kalinin, pp. 30–50.

[1732 samples with over 60,000 individuals, dating from 1963 to 1979 and taken in the environs of Kalinin, Novgorod, Pskovsk, Leningrad, southern Mirmansk, and Moscow showed that the human factors most responsible for influencing terrestrial mollusks were fire, agriculture, alteration of waterways, and introduction of foreign species of snails.]

Shikov, E. V. 1979. Dependence of the distribution of slugs of the genus *Deroceras* Rafinesque, 1820 in the flood-plains of the large rivers of the Valdai Hills on the direction of prevailing winds. Ekologiya (Ecology), No. 5, pp. 97–99.

[In the Staritsk region of Kalinin Province along the flood-plain of the Volga River there occur four species of *Deroceras*: *agreste* which is distributed in exact correspondence with the direction of the prevailing southwesterly winds, *reticulatum* occupies the most protected areas, and *sturanyi* and *laeve* usually co-occur with both species.]

Shileyko, A. A. & Z. Izzatullaev. 1980. Taxonomic structure of the terrestrial mollusks of the family Pupillidae in the fauna of the USSR and a description of a new species from central Asia. Dokl. AN Tadzh. SSR (Reports of the Tadzhikistan Academy of Sciences) 23(5):282–285 (Tadzhik Summary).

[The diagnoses of three genera and two subgenera of the family are given, as is a description of *Gibbulinopsis* (*Primipupilla*) *nanosignata*.]

Tavasiev, R. A. & T. A. Tavasieva. 1980. A new species of *Caucasigena* (Gastropoda: Hygromiidae) from the central Caucasus. ZZ 59(1):144–146 (ES).

[*Caucasigena schileykoi* is described from limestone cliffs in beech forests at an altitude of 800 m above sea level in the North Ossetian Autonomous Republic; it is distinguished from *C. rengarteni* by a sharp keel and by features of the reproductive system.]

Uvalieva, K. K. 1980. Ecological faunistic survey of the terrestrial mollusks of the forest-steppe habitat. Zool. Inst. Acad. Sci. KazSSR, Alma-Ata, 22 pp., MS No. 2051–2080.

[550 samples of land mollusks were collected on cattle pastures of collective farms in northern and central Kazakhstan and yielded 32 species, representing 17 genera and 13 families; 8 species are first reported from the area and 2 species are described as new.]

Zeifert, D. V. & I. M. Khokhutkin. 1979. Experimental studies on natural migrations in populations of autochthonous and introduced species of mollusks. Ecological studies of forest and meadow biocenoses in the Transural Plains. Info. materials Talitsk. Hospital. Sverdlovsk, pp. 46–50.

[Marked specimens of *Bradybaena fruticum* and *Eobania vermiculata* were used to show that spatial distribution is determined by the type of plant cover.]

Zhulidov, A. V. 1980. On the concentration of gastropods (Mollusca: Pulmonata) on plots of stinging nettles containing increased levels of some chemical elements. Vestnik Zoologii (Zoological Herald), No. 2, pp. 78–79.

[In the Voronezhky Preserve, heterogenous distribution was noted (mainly in *Succinea putris* and *Eulota fruticum*) in thickets of the stinging nettle *Utrica pubescens*; densities varied from zero to 178–211 snails/m^2 and it was shown that the snails preferred high levels of several trace elements.]

BIVALVIA

Alyakrinskaya, I. O. 1979. On the properties and sizes of shell crystals in bivalve mollusks. Dikhatel'n Belki Nekotor. Grupp. Sovrem. Zhivotnikh (Respiratory proteins of several groups of Recent animals). Moscow, pp. 142–150.

[Dissolution rates of shell crystals were investigated at differing pH's.]

Angelov, A. 1976. Revision of the family Pisidiidae in Bulgaria. Annual Report, Faculty of Zoology, University of Sofia 69(1):109–119 (Bulgarian; German Summary).

[242 samples from 145 collecting sites yielded three species of *Sphaerium* and ten of *Pisidium*; data include synonymies, descriptions, measurements, habitat characteristics, and distribution.]

Dorofeeva, L. A. & A. V. Khabakov. 1980. Determination of environmental temperatures for Recent and late Quaternary oysters, using the Ca/Mg method. Byul. Mosk. O-ba. Ispyt. Prirody. Otd. Geol. (Bulletin of the Moscow Naturalists Soc., Geol. Soc.) 55(4):106–113.

[Accumulation of Mg in calcitic shells of Recent oysters is governed by the temperature regime and is independent of salinity. Average temperatures of surface waters inhabited by late Quaternary oysters from the Karangatsky Horizon of the Kerchensk Peninsula were 22–23°C during the warm period of the year while the average annual temperatures were 15–16°C.]

Gerasimova, T. N. 1980. Seasonal changes in the dimensions and biomass of *Didacna trigonoides* (Pall.) in the Caspian Sea. GZ 16(2):53–55 (ES).

[Biomass alters significantly with the seasons, being drastically reduced in April–June at the time of the release of gametes.]

Goromosova, S. A. & A. Z. Shapiro. 1979. Physiological and biochemical aspects of adaptations of mussels in normal and in extreme conditions. Promisl. Dvustvorchat. Mollyuski—Midii i ikh rol' v ekosistemakh (Commercially important bivalve mollusks—mussels and their role in ecosystems). Leningrad, pp. 45–47.

[Under hypoxic conditions, the oxidized NAD necessary for glycolysis is produced by malate dehydrogenase.]

Goromosova, S. A. & V. A. Tamozhnyaya. 1980. Seasonal variation of transaminases in tissues of Black Sea mussels. BMV, No. 2, pp. 67–68 (ES).

[Intracellular localization and seasonal variation in activity of alanine aminotransferase and aspartate aminotransferase in the tissues of *Mytilus galloprovincialis* were studied. The intracellular distribution of aminotransferases depends on the function of the tissue, being mainly cytoplasmic in muscles and gills and mitochondrial in the hepatopancreas and gonads. Two peaks in activity occur: autumn and spring, both declining during active gametogenesis.]

Greenberg, M. J. & L. I. Ditton. 1979. Salinity adaptation and probable interdependence between heart muscle physiology, phylogeny, and biogeography of bivalve mollusks: basic directions for future research. 14th PSC, Sect. F, pp. 14–15.

[In the bivalve heart, the auricles appear especially to be the primary filter of urea. The subclasses Pteriomorpha, Heterodonta, and Paleoheterodonta are distinguished by the following physiological characters: the form of the action potential, ionic dependence, excitability, cholinergic systems of the myocardia, as well as by larger structural differences.]

Ignat'ev, A. V. & E. V. Krasnov. 1980. Isotopic oxygen composition of water and the growth temperatures of Recent and Quaternary mollusks of the Chukotsk Sea. PMIN, pp. 56–60.

[Basing their analysis on living and fossil bivalves from the shores of Wrangel Island in the Chukotsk Sea, the authors show that temperature changes of marine waters in the Northern Hemisphere during Pliocene–Quaternary time can be adequately documented by oxygen isotope paleothermometry.]

Ignat'ev, A. V. & I. M. Romanenko. 1980. Correlation of magnesium content of mussel shells with their mineral composition, structure, and growth temperatures. PMIN, pp. 85–91.

[In mussels from Peter the Great Bay, Mg levels increase ontogenetically, show seasonal fluctuations coincident with changes in water temperature, and exhibit sharp increases not correlated with seasonal events.]

Izzatullaev, Z. 1980. Bivalve mollusks of the family Corbiculidae in central Asia. ZZ 59(8):1130–1136 (ES).

[Of five species of corbiculids found in central Asia, two, *tibetensis* and *ferghanensis* which are ovoviviparous, are allocated to *Corbiculina* Dall, and three, *cor, fluminalis,* and *purpurea* which are presumed to be oviparous, to *Corbicula* Mühlfeld.]

Kafanov, A. I. 1980. On the nomenclature of the Cardiidae (Bivalvia) of the Sea of Azov and the Black Sea. ZZ 59(4): 623–626 (ES).

[The nomenclature of three species and one subspecies of cardiids inhabiting the Sea of Azov–Black Sea basin as well as the Mediterranean is discussed. *Cardium hystrix* (Lightfoot, 1786) is considered a synonym of *C. echinatum* Linne, 1758. The following new names are proposed: *C. ciliare* L., 1758, for *C. pauci-*

costatum Sowerby, 1834; *Acanthocardia* (*Sphaerocardium*) *ciliaris milaschewitschi* Kafanov, nom. n., for *C. paucicostatum* var. *impedita* Milaschewitsch, 1909, non *C. impeditum* Deshayes, 1860; *Didacna* (*Pontalmyra*) *kamyshburunensis* Kafanov, nom. n., for *C. paucicostatum* Deshayes 1838, non Sowerby 1834. The division of *Cerastoderma glaucum* (Poiret, 1789) into four species by Skarlato and Starobogatov (1972, "Guide to the fauna of the Black Sea and the Sea of Azov," pp. 178–249, Kiev) is regarded as correct.]

KARPENKO, A. A. 1980. Avoidance reaction to living starfish in the marine scallop *Patinopecten yessoensis* (Mollusca: Bivalvia). ZZ 59(1):146–149 (ES).

[The avoidance reaction, which changes with age of scallops, is a compound, unconditioned reflex, composed of three reactions: an "alert phase," a "response phase," and a "swimming phase."]

KARTAVTZEV, YU. F. 1979. Possible determination of a balanced polymorphism in loci coding for isoenzymes. BPGF, pp. 36–40 (ES).

[Either an increase or a decrease in heterozygosity with age was observed in the majority of loci (approx. 70%) of five species of mussels. It is interpreted as being due to some form of balancing selection and indicative of the selective nature of isozyme polymorphisms.]

KRASNOV, E. V., N. A. SIN'KOV, V. O. KHUDOLOZHKIN, A. V. IGNAT'EV, A. A. KARABTZOV & O. I. NEDAVA. 1980. Complex studies of the shell material in fossil and Recent specimens of *Arctica islandica* L. PMIN, pp. 73–80.

[X-ray, spectrophotometric and mass-spectroscopic analyses of Plio-Pleistocene and Recent *Arctica islandica* from eastern Iceland showed that concentrations of Mg, Sr, Na, Fe, and Mn in aragonitic shells increased with geological age. Growth temperatures were investigated by $^{18}O/^{16}O$ ratios in glacial and interglacial periods.]

KRASNOV, E. V., V. A. ZAIKO & N. N. ZAIKO. 1979. Biogeochemical indicators of adaptations of marine mollusks to changes in salinity. 14th PSC, Sect. F, p. 27.

[Ontogenetic variation in the incorporation of chlorine into the shells of pectinids was shown, with maximum levels occurring during the autumnal period of rapid growth; sculptural features such as the number of ribs in *Patinopecten yessoensis* and *Swiftopecten swifti* as well as in *Anadara broughtoni* vary with salinity and temperature.]

KUZNETZOV, A. P., M. KOZAKA & I. ISIBASI. 1980. Dimensional characteristics of gills and labial palps of several marine mollusks. ZZ 59(2):175–180 (ES).

[Dimensions of gills and palps were measured in *Moerella jedoensis,* a deposit feeder, and in *Ruditapes philippinarum* and *Mytilus edulis,* both suspension feeders; in *M. jedoensis,* about 40% of the total gill-palp area was taken up by the gill and 60% by the palp, while in the other species, over 90% is gill and less than 10% is palp. Thus, the Tellinacea (deposit feeders) should be considered an independent ecological group. Arguments are advanced supporting the origin of the Eulamellibranchia, Pseudolamellibranchia, and Filibranchia from the Protobranchia.]

LUKANIN, V. V. 1979. Roles of cellular and organismic reactions in the accommodation of mussels to changes in salinity. Promisl. Dvustvorchat. Mollyuski—Midii i ikh rol' v ekosistemakh. (Commercially important bivalve mollusks—mussels and their role in ecosystems). Leningrad, pp. 82–83.

[Mussels have the ability to undergo adaptive changes in function at cellular and organismic levels during seasonal changes in salinity. Evolutionary pathways of adaptation to low salinities are considered.]

MILEIKOVSKII, S. A. 1979. On the maintenance of the structure and recruitment of spat into the druzes [mats] in the mussel *Crenomytilus grayanus.* BMV, No. 5, pp. 39–43 (ES).

[Young larval spat are recruited into the adult attached masses, called *druz* in Russian, of these mussels; such "nursery-like" behavior is apparently caused by an attraction to the byssal strands of adults and also protects the tiny spat.]

NIKIFOROV, S. M. 1979. Genetic and morphometric variability of the far eastern oyster (*Crassotrea gigas*). BPGF, pp. 134–138 (ES).

[Electrophoretic study of 46 loci in five populations in Peter the Great Bay showed polymorphism at more than 30% of the loci, an average heterozygosity of 0.07–0.08, and heterozygote deficiencies in most populations.]

NISTRATOVA, S. N., T. M. TURPAYEV, N. N. GODOVIKOV, M. N. GODOVIKOVA & V. I. DANILOVA. 1980. Analysis of the action of several organophosphate inhibitors of cholinesterase on the hearts of bivalve mollusks. ZEBF 16(1):30–38 (ES).

[This study investigates the action of organophosphate inhibitors of cholinesterase on isolated ventricles from the hearts of the bivalve mollusks *Crenomytilus grayanus, Spisula sachalinensis,* and *Anodonta complanata.*]

POPOV, S. V. 1980. The formation and development of the hinge during the ontogeny of North Pacific bivalve mollusks of the family Carditidae. ZZ 59(6):945–948 (ES).

[Hinge formation in six species (*Cyclocardia ventricosa, C. crebricostata, C. rjabininae, C. isaotakii, Miodontiscus annakensis,* and *Crassicardia crassidens*) originates in a similar manner. The cardinal teeth of the right valve 3a 3b and the lower lateral tooth AIII appear from the lower primary plate III. The third cardinal tooth appears as a raised edge in the larval stage (nymph). In the left valve, plate IV gives rise to teeth 4b and AIV, the anterior cardinal tooth 2 is newly formed. The complete formula of the hinge is:

$$\frac{\text{AV AIII 3a 3b PIII}}{\text{AIV 2 4b PII PIV}}$$

In species of both *Cyclocardia* and *Crassicardia,* the development of lateral teeth stops in the early stages; in the adult they are barely discernible. In *Miodontiscus,* these teeth are developed in all stages of growth. *Crassicardia crassidens* differs notably in morphology from species of the genus *Cyclocardia* at the early dissoconch stage, supporting the independence of the genus *Crassicardia.*]

POPOV, S. V. & O. A. SKARLATO. 1980. The bivalve mollusks of the family Carditidae in the North Pacific and adjacent seas. ZZ 59(7):996–1007 (ES).

[Representatives of the family in the North Pacific, including the Sea of Japan, Okhotsk Sea, Bering Straits, and Chukotsk Sea are: *Crassicardia crassidens, Cyclocardia crebricostata, C. rjabininae, C. isaotakii, C. ferruginea, Miodontiscus annakensis,* and *M. prolongatus,* the latter three being characteristic of the Bering Straits High Boreal Province, where they occur with *Cyclocardia ventricosa ovata* and *C. ripensis.* Diagnoses of genera and species are included.]

POZDNYAKOVA, L. A. 1980. On the dynamics of the calcium/magnesium ratio in calcitic shells of closely related species of bivalve mollusks in the Sea of Japan. PMIN, pp. 92–105.

[Ontogenetic variations of Ca/Mg ratios in three species of pectinids (*Patinopecten yessoensis, Chlamys swifti,* and *C. farreri*) reflect seasonal fluctuations of water temperature.]

PROSKURINA, E. S. 1979. On linear and weight growth of the

principle bivalve mollusks of the Aral Sea. GZ 15(5):105–106.

[Studies were conducted on the native *Dreissena polymorpha* var. *aralensis* and *Cerastoderma lamarckii lamarckii* and on the introduced *Abra ovata* collected in 1973–1974. Age was determined by analysis of growth lines; average annual growth was 1.7, 3.5, and 2.06 mm respectively. *Abra* may, in time, become one of the primary components of the benthos in the Aral Sea.]

Pryadko, V. P. & V.A. Krisal'nyi. 1980. Histophysiological changes in tissues of several organs of *Anodonta cygnea* under the influence of different calcium concentrations. GZ 16(1): 56–59 (ES).

[Entry of calcium ions into the organism causes a redistribution of the concentrations of K^+ and Na^+ ions in the cells of the glandular apparatus of the gills and in the foot muscle. The overall metabolism of calcium increases with the increase in activity of tissue enzymes. The gills of freshwater mollusks comprise important depots of calcium salts.]

Rusakov, Yu. I. & V. K. Kazakov. 1979. Extraction of an insulin-like substance from mollusks and production of antisera to it. ZEBF 15(6):617–619 (ES).

[An insulin-like substance was extracted from the visceral mass of the freshwater clams, *Unio pictorum* and *Anodonta cygnea,* antisera prepared, and their properties investigated.]

Selin, N. I. 1980. Coordinating conference for the study of mussels (Mytilidae). Leningrad 12–14 Feb. 1979, BMV, No. 2, pp. 80–81.

[45 papers were presented, including works on systematics, distribution, morphology, ecology, growth, nutrition, and economic importance of mussels.]

Skul'skii, I. A., I. V. Burovina & N. B. Pivovarova. 1979. Mechanisms of potassium homeostasis in mussels inhabiting seas of varying salinities. 14th PSC, Sect. F, pp. 42–43.

[Two mechanisms are suggested for the maintenance of optimal intracellular concentrations of K in different environmental salinities.]

Stankyavichyus, A. B. 1979. Osmotic and ionic regulation in east Baltic mussels, *Mytilus edulis,* adapted to different salinities of water. Promisl. Dvustvorchat. Mollyuski—Midii i ikh rol' v ekosistemakh (Commercially important bivalve mollusks—mussels and their role in ecosystems). Leningrad, pp. 114–115.

[Under hypotonic conditions, mussels have the ability to maintain elevated osmotic pressure due to the isolation of the mantle cavity from external surroundings.]

Yavnov, S. V. 1979. Second All-Union Symposium on the morphology, systematics, phylogeny and ecogenesis of bivalve mollusks. Tiraspol, 3–4 Oct. 1978. BMV, No. 5, pp. 93–94.

[The symposium was dedicated to the morphology, taxonomy, paleo- and neo-ecology of oysters (suborder Ostreina) and mactras (superfamily Mactroida). Twenty-five papers were heard, among these: On the origin and phylogeny of oysters (O. A. Skarlato, Ya. I. Starobogatov & V. A. Sobetskii); Studies on Upper Cretaceous oysters and their habitats (L. A. Dorofeyeva, A. V. Khabakov & V. A. Sobetskii); Species structure, distribution and paleoecology of four subfamilies of Upper Cretaceous oysters (Z. N. Poyarkova); Genetic systematics of contemporary oysters of the southern shore (S. M. Nikiforov); Microstructure of mactrid shells and its implications for systematics (S. V. Yavnov); Development of larval shells in mactrids (L. A. Medvedeva); and Trophic structure of populations (A. P. Kuznetsov).]

Yavnov, S. V. 1980. Shell structure in mollusks of the family Mactridae. BMV, No. 3, pp. 62–66 (ES).

[Three varieties of crossed-lamellar structures were discerned, with two sublayers in the external layer and a single internal layer, in seven species of this family from Japan, Okhotsk, Black and Barents seas.]

Yavnov, S. V. & A. V. Ignat'ev. 1979. Shell structure and growth temperatures in mollusks of the family Mactridae. BMV, No. 5, pp. 44–48 (ES).

[Using layered structures of the shells, the authors determined the maximum ages for three species in the Sea of Japan: *Spisula sachalinensis,* 55 years; *S. voya,* 52 years; and *Mactra sulcataria,* 12 years. Optimum growth temperatures were also determined.]

Zaiko, V. A., N. N. Zaiko & E. V. Krasnov. 1980. Shell sculptures of marine bivalve mollusks as an indicator of the salinity of their habitats. PMIN, pp. 106–112.

[Salinity affects the number of ribs in *Cardium edule*; an equation is given correlating the relationship between the number of ribs and the average salinity.]

Zolotarev, V. N., D. M. Polyakov & N. A. Sin'kov. 1980. Comparison of the chemical composition of the shells of several Recent and subfossil mollusks from the Sea of Japan. PMIN, pp. 61–72.

[Incorporation of Mg, Sr, Fe, Mn, and Ba into the calcium carbonate matrix of shells decreases ontogenetically; Fe and Mn accumulations are initially greater while in larger annulations Ba, Mg, and Sr are found in higher concentrations.]

CEPHALOPODA

Dubinina, T. S. 1980. On the finding of larvae of the squid *Moroteuthis robsoni* (Oegopsida: Onychoteuthidae) in the southwestern Atlantic. ZZ 59(7):1094–1096 (ES).

[The late larval stage of *Moroteuthis robsoni,* a species widely distributed in the southern Atlantic, is described for the first time; its characters closely approach those of *Onykia carriboea.*]

Filippova, Yu. A & V. L. Yukhov. 1979. Species composition and distribution of cephalopod mollusks in meso- and bathypelagic Antarctic waters. Antarktika (Moscow), No. 18, pp. 175–187.

[Analysis of sperm whale gut contents and samples taken on various research vessels indicate a high degree of endemism in Antarctic cephalopods.]

Kotelevtzev, Yu. V. 1980. Photoaffinity marking of the acetylcholine receptor from optic ganglia of squid. "Materials of the 11th Conference on molecular studies. Faculty of Biology, Moscow State University," Moscow, pp. 103–109, figs.

[Studies were conducted on the binding of the photoaffinity ligand azidocytisine to the nicotine acetylcholine receptor in the optic ganglia of *Loligo.*]

Nesis, K. N. 1979. A short note on the zoogeography of the pelagic fauna of the Australia–New Zealand region. TIO, 106:125–139.

[Based on samples collected by the R/VS *Mendeleev, Vityas, Obi,* the zoogeographic distributions of 66 species were characterized.]

Nesis, K. N. 1980. Sepiids and loliginids: a comparative survey of the distribution and evolution of neritic cephalopod mollusks. ZZ 59(5):677–688 (ES).

[The horizontal and vertical distributions of the cuttlefish family Sepiidae and the squid family Loliginidae in the Pacific Ocean were analyzed. The greatest generic and species diversities of

loliginids occur in the Indo-Malaysian Province of the Indo-West Pacific; aberrant forms tend to be tropical. Sepiids are absent from the New World; in the Old World, their distributions practically coincide with those of loliginids. Sepiids are more diverse, with endemism and abundance of aberrant forms greatest not in the tropics but in the subtropics (South Africa, Japan, China, southern half of Australia). Species of both families can be divided into upper sublittoral, eurybathic (entire shelf), and lower sublittoral–upper bathyal, but the fraction of "deep water" species is significantly higher in sepiids than in loliginids. The evolution and adaptive radiation of sepiids are discussed in connection with their dominance of the subtropics and relatively greater depths.]

Nesis, K. N. 1980. On the systematic position of *Chiroteuthis famelica* Berry (Cephalopoda: Oegopsida). Byul. Mosk. Obshch. Isp. Prir. (Bulletin of the Moscow Naturalists Society), Biology Series, No. 4, pp. 59–66 (ES).

[Studies of a specimen intermediate in dimensions between the holotypes of *Chiroteuthis famelica* Berry, 1909 (postlarval), and *Chiroteuthis acanthoderma* Lu, 1977 (a grown but immature individual), have shown that these taxa are synonymous. A new genus *Asperoteuthis* Nesis is proposed for *C. famelica,* an eastern central Pacific mesobathic species undergoing daily vertical migrations (day 600–1000 m, night 200–400 m). Nine genera are now known in the family Chiroteuthidae; a list of known species is provided.]

Nigmatullin, Ch. M. 1979. Principle stages in the evolution of the squid family Ommastrephidae (Cephalopoda: Oegopsidae). PEMZ, pp. 210–219.

[Oegopsid squids have evolved as active swimmers (nektonic) with the ommastrephids representing the acme of the lineage. The earliest representatives of this family were probably unspecialized nekto-benthic forms in the transition zone between the shelf and continental slope (100–350 m). The three constituent subfamilies are discussed in terms of presumed evolutionary sequences: the Illicinae with *Illex,* a nearshore nektonic form having originated in the western Atlantic and spread to the eastern Atlantic, with *Todaropsis* diverging from the stem lineage early to occupy a nerito-oceanic niche: the Todarodinae occur over the continental slope and partly open ocean with basically neritic forms (*e.g., Martialia* and *Nototodarus*). Radiation of the todarinines occurred in oceanic surface waters above the slope and adjacent parts of the open ocean, especially in high latitudes. The successful exploitation of the open ocean took place within two lineages—the ornithoteuthine and the ommastrephine. The former expanded into the bathyal and middle depths, the latter occupy the epipelagic niche with the larger species occurring in high latitudes. Only *Dosidicus* did not fully adapt to the oceanic epipelagic zone, staying predominantly in comparatively nearshore waters of high productivity. Parallelisms and convergences between the Ommastrephidae and the scombroid fishes in their adaptations to the nektonic oceanic niche are discussed.]

Pinchukov, M. A. & Yu. V. Korzun. 1979. On the discovery of a representative of the genus *Nototodarus* (Cephalopoda: Ommastrephidae) in the western portions of the Indian Ocean. Tr. 4th Konf. Mold. Uchenikh, pp. 144–146. (Transactions of the 4th conference of young scientists.)

[This is a preliminary description of a squid of the genus *Nototodarus* first collected on the Saya de Malha Bank and on the southern shelf of Somalia. On the basis of important taxonomic features, these western Indian Ocean squid differ sharply from *N. nipponicus* and are close to *N. sloani,* representing a new subspecies of the latter, or possibly a full species in this genus.

Rozengart, E. V., A. P. Brestkin & Yu. I. Kas'yanenko. 1979. Specific differences in phosphatase activity in optic ganglia of Pacific squid. 4th Internat. Biochem. Meeting. Moscow, p. 166.

[Nerve tissues of the squids, *Berryteuthis magister, Ommastrephes bartrami, Todarodes pacificus,* and *Nototodarus sloani sloani,* lack alkaline phosphatase and contain acid phosphatases that differ in molecular weight between species.]

Zuev, G. V., Ch. M. Nigmatullin & V. N. Nikol'skii. 1979. Growth and lifespan of the wing-armed squid *Stenoteuthis pteropus* in the eastern central Atlantic. ZZ 58(11):1632–1641 (ES).

[Growth of linear dimensions and weight was studied. Life-span does not exceed 1–1.5 years.]

Zuev, G. V., Ch. M. Nigmatullin & V. N. Nikol'skii. 1980. A method for quantitatively surveying oceanic epipelagic squid. Kolichetsv. Metodi v ekol. Zhivotnich. (Quant. Methods in Animal Ecol.). Leningrad, pp. 57–59.

[A method, utilizing the natural attraction of squids to light, was developed to study *Stenoteuthis pteropus* and *S. oualaniensis.*]

Joseph Rosewater, 1929–1985

The malacological community suffered a great loss on March 22 with the passing of Dr. Joseph Rosewater. At the time of his death, Dr. Rosewater, an authority on the taxonomy and evolutionary biology of mollusks, was curator of the mollusk division of the National Museum of Natural History, Smithsonian Institution. The author of more than 80 technical works, Dr. Rosewater was a valued contributor to the pages of our journal, both as an author and as a frequent reviewer of submitted manuscripts. His talents, dedication, and generosity will be missed.

California Malacozoological Society

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